

10027345-122001

What is claimed is:

- 1 1. An electromagnetic interference (EMI) shield comprising:
2 a waveguide body including an array of waveguide cells each having a
3 contiguous inner surface; and
4 an absorber layer covering at least a portion of each contiguous inner surface
5 and capable of absorbing electromagnetic radiation over a select frequency range.
- 1 2. The shield of claim 1, wherein each waveguide cell has a polygonal cross-
2 section.
- 1 3. The shield of claim 1, wherein each waveguide cell has a circular cross-
2 section.
- 1 4. The shield of claim 1, wherein the polygonal cross-sectional shape is
2 rectangular.
- 1 5. The shield of claim 1, wherein the absorber layer covers the entire
2 contiguous inner surface.
- 1 6. The shield of claim 1, wherein the absorber layer has a thickness between
2 about 0.025 millimeters to about 0.25 millimeters.
- 1 7. The shield of claim 1, wherein the absorber layer has a resistivity between
2 about 200 Ohms/square and about 1200 Ohms/square.
- 1 8. The shield of claim 1, wherein the waveguide body is formed of an
2 insulating material.

- 1 9. The shield of claim 8, wherein the insulating material is one selected from
2 the group of materials consisting of: plastic, polymer, composite material, ceramic,
3 wood and glass.
- 1 10. The shield of claim 1, wherein the select frequency range includes
2 frequencies in the megahertz (MHz) range and the gigahertz (GHz) range.
- 1 11. The shield of claim 1, wherein the absorber layer includes an epoxy resin
2 filled with particles having a high magnetic loss over the select frequency range.
- 1 12. The shield of claim 1, wherein the body is formed of metal.
- 1 13. An electromagnetic interference (EMI) shield, comprising:
2 an array of waveguide cells each having a contiguous inner surface;
3 an absorber layer covering at least a portion of each contiguous inner
4 surface, the absorber layer capable of absorbing electromagnetic radiation over a
5 select frequency range.
- 1 14. The shield of claim 13, wherein the absorber layer entirely covers each
2 contiguous inner surface.
- 1 15. The shield of claim 13, wherein the waveguide cells have a cross-sectional
2 shape that is one of polygonal and circular.
- 1 16. The shield of claim 13, wherein the waveguide cells are formed from an
2 insulator.
- 1 17. The shield of claim 13, wherein the absorber layer has a thickness between
2 about 0.025 millimeters to about 0.25 millimeters.

1 18. The shield of claim 13, wherein the select frequency range includes
2 frequencies in the megahertz (MHz) range and the gigahertz (GHz) range.

1 19. An electromagnetic interference (EMI) shield for a computer, comprising:
2 a metal chassis having an aperture, the chassis adapted to enclose portions of
3 the computer that generates heat and EMI over a select frequency range; and
4 an EMI waveguide shield fixed to the chassis and covering the aperture, the
5 EMI waveguide shield including an array of waveguide cells each having a
6 contiguous inner surface, and an absorber layer covering at least a portion of each
7 contiguous inner surface, the absorber layer capable of absorbing the EMI.

1 20. The EMI shield of claim 13, wherein each waveguide cell has an associated
2 aperture that allows heat to pass therethrough.

1 21. The EMI shield of claim 19, further comprising the computer.

1 22. The EMI shield of claim 19, wherein the waveguide shield includes a body
2 formed from an insulator.

1 23. A method of reducing electromagnetic interference (EMI) from a computer,
2 comprising:
3 enclosing portions of the computer that generate heat and EMI over a select
4 frequency range with a metal chassis having an interior;
5 introducing the EMI and heat to an array of waveguide cells fixed to the
6 chassis, each waveguide cell having an aperture leading from the interior and a
7 contiguous inner surface at least partially coated with an absorber layer that absorbs
8 the EMI over the select frequency range; and
9 absorbing the EMI with the absorber layer to substantially contain the EMI within
10 the interior, while allowing the heat to pass from the interior through each aperture.

1 24. The method of claim 23, further including covering the entirety of each inner
2 surface with the absorber layer.

1 25. The method of claim 23, including forming the absorber layer to have a
2 thickness between about 0.025 millimeters and 0.25 millimeters.

1 26. The method of claim 23, including fixing the waveguide cells to the chassis
2 with screws.

10027345-122001
FO0221 SHEET